



Test Report

Report No.: PL2006091

Page 1 of 9

Applicant: Dongguan City Sihome Photoelectric Technology Co., Ltd.

Address of Applicant: No.7, Road 1st, Chikan Industrial Zone, Chikan Village, Shipai Town,
Dongguan City, Guangdong Province, China

Date of Receiving Samples: June 5, 2020

Testing Period: June 5, 2020 to June 9, 2020

Description of Samples

The submitted sample and sample information was/were submitted and identified by/on behalf of client.

Sample Name: Face Shield

Device Type: Spectacles Goggles Face Shields

Model No.: LD-220-PT

Quantity: 12 Pairs

Material: Plastic

Scale No.: Not provided

Frame Color: Transparent

Lenses Color: Transparent

P.O. No.: Not provided

Supplier / Brand: Not provided

Buyer: Not provided

Goods exported to: Not provided

Country of Origin: China

Tests Conducted: As requested by the applicant, refer to attached page(s) for details.

Issued by stamp

Date of Issued: June 12, 2020

For and on behalf of:

Shenzhen Precision Eyewear
Testing & Inspection Services Co., Ltd.

Manager: WenHua Li



Shenzhen Precision Eyewear
Testing & Inspection Services Co., Ltd.



中国认可
国际互认
检测
TESTING
CNAS L2210

Test Report

Report No.: PL2006091

Page 2 of 9

Sample Photo:



Conclusion:

| <u>Tested Samples</u> | <u>Required Standard(s)</u> | <u>Results</u> |
|-----------------------|---|--|
| Submitted Samples | EN 166: 2001 Personal eye - protection – Specifications, only test the related parameters, please refer to “Tests Conducted Summary” for details. | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |



Test Report

Report No.: PL2006091

Page 3 of 9

Tests Conducted Summary

1. Test standards

- EN 166: 2001 Personal eye - protection – Specifications
EN 167: 2001 Personal eye- protection – Optical test methods
EN 168: 2001 Personal eye-protection - Non-optical test methods

Note: The applicant's attention was drawn that the manufacturer should not use the frame materials which are known to cause irritation, allergic or toxic reaction during wear in a normal state of health against significant proportion of users.

| Requirement | | | | Testing | | Results ¹ | |
|--|------------------------------------|--------------|-------------|--------------|--------|----------------------|--|
| Test Items | | According to | | According to | | | |
| | | EN | Clause | EN | Clause | | |
| General construction | | 166 | 6.1 | -- | -- | P | |
| Materials (Nickel release) | | 166 | 6.2 | -- | -- | NA | |
| Headbands | | 166 | 6.3 | -- | -- | P | |
| Field of vision | | 166 | 7.1.1 | 168 | 18 | P | |
| Refractive powers (Unmounted oculars covering one eye) | Spherical refractive powers | 166 | 7.1.2.1.1 | 167 | 3.1 | NA | |
| | Astigmatic refractive powers | | | | | | |
| | Prismatic refractive powers | | | | | | |
| Refractive powers (Mounted oculars and covering both eyes) | Spherical refractive powers | 166 | 7.1.2.1.2 | 167 | 3.2 | Optical Class 1 | |
| | Astigmatic refractive powers | | | | | | |
| | Prismatic refractive powers | | | | | | |
| Transmittance | Oculars without filtering action | 166 | 7.1.2.2.1 | 167 | 6 | P | |
| | Oculars with filtering action | 166 | 7.1.2.2.2 | 167 | 6 | NA | |
| | Ultraviolet Filter | 170 | 4 | 167 | 6 | NA | |
| | Sunglare Filter for Industrial Use | 172 | 4.1 | 167 | 6 | NA | |
| Variations in transmittance (Exempt oculars without filtering action) | Oculars without corrective effect | 166 | 7.1.2.2.3.1 | 167 | 7 | NA | |
| | Oculars with corrective effect | 166 | 7.1.2.2.3.2 | 167 | 7 | NA | |



Test Report

Report No.: PL2006091

Page 4 of 9

Tests Conducted Summary

| Requirement | | | | Testing | | Results | |
|--|-----------------------------------|---------------------|-----------|--------------|----------|------------------|--|
| Test Items | | According to Clause | | According to | | | |
| | | EN | Clause | EN | Clause | | |
| Diffusion of light | | 166 | 7.1.2.3 | 167 | 4 | P | |
| Quality of material and surface | | 166 | 7.1.3 | 167 | 5 | P | |
| Minimum robustness ² | | 166 | 7.1.4.1 | 168 | 4 | NA | |
| Increased robustness | Unmounted oculars | 166 | 7.1.4.2.1 | 168 | 3.1 | NA | |
| | Complete eye-protectors and frame | 166 | 7.1.4.2.2 | 168 | 3.2 | P | |
| Stability at an elevated temperature | | 166 | 7.1.5.1 | 168 | 5 | P | |
| Resistance to ultraviolet radiation (oculars only) | | 166 | 7.1.5.2 | 168 | 6 | P | |
| Resistance to corrosion (All metal parts only) | | 166 | 7.1.6 | 168 | 8 | NA | |
| Resistance to ignition | | 166 | 7.1.7 | 168 | 7 | P | |
| Protection against high-speed particles | | 166 | 7.2.2 | 168 | 9 | NA (NO CLAIM) | |
| Protection against chemical droplets of liquids | For Goggles | 166 | 7.2.4 | 168 | 12 | NA | |
| | For face-shields | | | 168 | 10.2, 12 | P | |
| Lateral protection | | 166 | 7.2.8 | 168 | 19 | NR | |
| Resistance to fogging of oculars | | 166 | 7.3.2 | 168 | 16 | NR | |
| Information supplied by the manufacturer | | 166 | 10 | -- | -- | NR | |

Remarks: 1. P = Pass; F = Fail; NA = Not Applicable; NR= Not require; X=Checked.

2. This requirement relates only to cover plates and oculars with filtering effect and not be assessed if these items are intended to meet the requirements for increased robustness or resistance to high speed particles, in which case the requirements of 7.1.4.2 or 7.2.2 shall be met.



Test Report

Report No.: PL2006091

Page 5 of 9

Test Result

General construction—Clause 6.1/ Headbands – Clause 6.3

| Sample No. | General construction | | Headbands | | | Comment | Result(s) | | |
|-----------------|----------------------|--------|-----------|------------|----|---------|-----------|--|--|
| | Defects | | Width(mm) | Adjustable | | | | | |
| | Observed | Absent | | Yes | No | | | | |
| 2006091-(01~03) | | X | 18.4 | X | -- | -- | P | | |

Requirements:

1. General construction: Eye-Protectors shall be free of projections, sharp edges or other defects which are likely to cause discomfort or injury during use.
2. Headbands: shall be at least 10mm wide over any portion which may come into contact with the wearer's head ,and shall be adjustable or self-adjusting;

Field of vision—Clause 7.1.1 / EN 168:2001 Clause 18

| Sample No. | Head-form | | Exhibit minimum field of vision defined in the standard | | Comment | Result(s) |
|-----------------|-----------|-------|---|----|---------|-----------|
| | Medium | Small | Yes | No | | |
| 2006091-(01~03) | X | | X | -- | -- | P |

Requirements:

Eye-Protectors shall be exhibit field of vision an area of not less than 22 mm in the horizontal length and 20mm in the vertical width in front of each eye.

Refractive powers—Clause 7.1.2.1 .2 / EN 167:2001 Clause 3.2

| Sample No. | Refractive powers | | | | Difference in prismatic refractive powers(cm/m) | | Result(s) | |
|------------|-----------------------------|-------|------------------------------|-------|---|---------|-----------|--|
| | Spherical(m ⁻¹) | | Astigmatic(m ⁻¹) | | Horizontal | | | |
| | Left | Right | Left | Right | Base Out | Base In | | |
| 2006091-01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | -- | 0.00 | |
| 2006091-02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | -- | 0.00 | |
| 2006091-03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | -- | 0.00 | |

Requirement: Permissible tolerances for refractive powers :

| | | | | | |
|-----------------|--------------|------|------|------|------|
| Optical class 1 | ±0.06 | 0.06 | 0.75 | 0.25 | 0.25 |
| Optical class 2 | ±0.12 | 0.12 | 1.00 | 0.25 | 0.25 |
| Optical class 3 | +0.12~ -0.25 | 0.25 | 1.00 | 0.25 | 0.25 |

Measurement Uncertainty (if necessary):



Test Report

Report No.: PL2006091

Page 6 of 9

Test Result

Transmittance (without filtering action)—Clause 7.1.2.2/EN 167:2001 Clause 6

| Sample No. | Requirements | Luminous Transmittance, T_v (%) | | Result(s) |
|------------|----------------|-----------------------------------|-------|-----------|
| | | Left | Right | |
| 2006091-01 | $T_v > 74.4\%$ | 88.7 | 88.4 | P |
| 2006091-02 | | 88.5 | 88.5 | P |
| 2006091-03 | | 88.5 | 88.3 | P |

Measurement Uncertainty (if necessary):

Diffusion of light—Clause 7.1.2.3 /EN 167:2001 Clause 4

| Sample No. | Samples type | Diffusion of light(cd/m ²) / Ix | | Result(s) |
|------------|--------------|---|-------|-----------|
| | | Left | Right | |
| 2006091-01 | III | 0.24 | 0.19 | P |
| 2006091-02 | | 0.17 | 0.19 | P |
| 2006091-03 | | 0.17 | 0.17 | P |

Requirements:

The maximum value of the reduced luminance factor shall be :

I 1.00(cd/m²) / Ix for welding filter;

II 0.75(cd/m²) / Ix for oculars used in eye-protectors against high speed particles;

III 0.50 (cd/m²) / Ix for all other oculars;

Measurement Uncertainty (if necessary):



Test Report

Report No.: PL2006091

Page 7 of 9

Test Result

Quality of material and surface—Clause 7.1.3 /EN 167:2001 Clause 5

| Sample No. | Defects | | Comment | Result(s) |
|--|----------|--------|---------|-----------|
| | Observed | Absent | | |
| 2006091-(01~03) | | X | -- | P |
| Requirements: | | | | |
| Except in a marginal area 5 mm wide, oculars shall be free from any significant defects likely to impair vision in use, such as bubbles, scratches, inclusions, dull spots, pitting, mould marks, scouring, grains, pocking, scaling and undulation. | | | | |

Increased robustness —Clause 7.1.4.2 /EN 168:2001 Clause 3.2

| Sample No. | Test temperature(°C) | Test position | Defects | | Comment | Result(s) | | |
|--|----------------------|---------------|----------|--------|---------|-----------|--|--|
| | | | Observed | Absent | | | | |
| 2006091-(04~05) | 55 | Left Frontal | | X | -- | P | | |
| 2006091-06 | | Left Lateral | | X | | P | | |
| 2006091-(07~08) | -5 | Left Frontal | | X | -- | P | | |
| 2006091-09 | | Left Lateral | | X | | P | | |
| 2006091-(04~05) | 55 | Right Frontal | | X | -- | P | | |
| 2006091-06 | | Right Lateral | | X | | P | | |
| 2006091-(07~08) | -5 | Right Frontal | | X | -- | P | | |
| 2006091-09 | | Right Lateral | | X | | P | | |
| Requirements: | | | | | | | | |
| The following defects shall not occur: | | | | | | | | |
| 1. Ocular fracture; | | | | | | | | |
| 2. Ocular deformation; | | | | | | | | |

Stability at an elevated temperature —Clause 7.1.5.1 /EN 168:2001 Clause 5

| Sample No. | Apparent deformation | | Comment | Result(s) |
|--|----------------------|--------|---------|-----------|
| | Observed | Absent | | |
| 2006091-(04~06) | | X | -- | P |
| Requirements: | | | | |
| Assembled eye-protectors shall show no apparent deformation; | | | | |



Test Report

Report No.: PL2006091

Page 8 of 9

Test Results

Resistance to ultraviolet radiation (oculars only) —Clause 7.1.5.2 /EN 168:2001 Clause 6

| Samples type | | Sample No. | | | | | |
|--|---------------|------------|-------|------------|-------|------------|-------|
| Other oculars | | 2006091-01 | | 2006091-02 | | 2006091-03 | |
| Test Items | | Left | Right | Left | Right | Left | Right |
| The relative change of luminous transmittance (%) | Before Expose | 90.1 | 90.0 | 90.3 | 90.1 | 89.9 | 89.7 |
| | After Expose | 90.1 | 90.0 | 90.3 | 90.2 | 89.8 | 89.7 |
| | Difference | 0.0 | 0.0 | 0.0 | +0.1 | -0.1 | 0.0 |
| Reduced scattered light coefficient(cd/m ²) / lx | Before Expose | 0.04 | 0.09 | 0.02 | 0.02 | 0.08 | 0.04 |
| | After Expose | 0.03 | 0.09 | 0.02 | 0.02 | 0.08 | 0.07 |
| Result(s) | | P | | P | | P | |

Requirements:

1. The relative change of luminous transmittance

| Luminous transmittance | | Permissible relative Change (%) |
|------------------------|-----------|---------------------------------|
| Less than (%) | Up to (%) | |
| 100 | 17.8 | ±5 |
| 17.8 | 0.44 | ±10 |

2. Reduced scattered light coefficient

The maximum value of the reduced luminance factor shall be:

- 1.00(cd/m²) / lx for welding filter;
- 0.75(cd/m²) / lx for oculars used in eye-protectors against high speed particles;
- 0.50 (cd/m²) / lx for all other oculars;

Measurement Uncertainty (if necessary):

Resistance to ignition—Clause 7.1.7 /EN 168:2001 Clause 7

| Sample No. | Continued combustion | | Comment | Result(s) |
|--|----------------------|----|---------|-----------|
| | Yes | No | | |
| 2006091-(04~06) | | X | -- | P |
| Requirements: | | | | |
| Eye-protectors shall be considered to be satisfactory if no parts ignites or continues to glow after removal of the steel rod. | | | | |

Test Report

Report No.: PL2006091

Page 9 of 9

Test Results

Protection against droplets and splashes of liquids — Clause 7.2.4 / EN 168:2001 Clause 12 (for face shield)

| Sample No. | The rectangle without first intercepting | | | Minimum vertical centre-line depth | | Comment | Results |
|-----------------|--|---------|----|------------------------------------|--------|---------|---------|
| | *Test Point | Contact | | ≥150mm | <150mm | | |
| | | Yes | No | Yes | No | | |
| 2006091-(10~12) | a, b, c, d, e, f | | X | X | | -- | P |

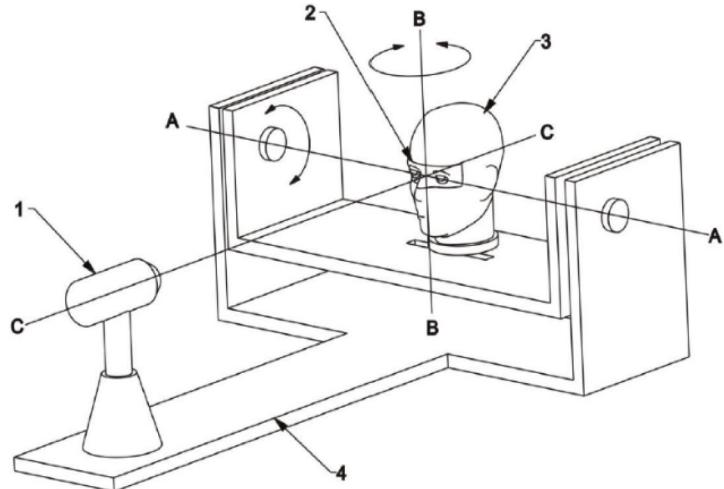
Requirements:

The results shall be considered to be satisfactory if:

1. No pink or crimson appears in the ocular regions defined when goggle for protection against droplet. No account shall be taken of any such colouration up to a distance of 6mm inside the edges of eye-protector;
2. Face-shields cover the eye-region rectangle of the appropriate head-form.
3. Additionally, for face-shields, shall have a viewing area with a minimum vertical centre-line depth of 150mm when mounted in the appropriate housing.

*Test Point:

- a. Facing forwards and rotated (45±1)° forwards about horizontal axis A
- b. Facing forwards and rotated (45±1)° backwards about horizontal axis A
- c. Rotated (90±1) °to the left about vertical axis B and rotated (45±1)° forwards about horizontal axis A
- d. Rotated (90±1) °to the left about vertical axis B and rotated (45±1)° backwards about horizontal axis A
- e. Rotated (90±1) °to the right about vertical axis B and rotated (45±1)° forwards about horizontal axis A
- f. Rotated (90±1) °to the right about vertical axis B and rotated (45±1)° backwards about horizontal axis A



Key
 1 laser beam or cylindrical tube fitted with cross wires
 2 rectangle enclosing the eye region
 3 headform
 4 support frame

-----Report End-----

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of PEL (Precision Eyewear Testing & Inspection Co., Ltd.), this report can't be reproduced except in full.